

# A REVIEW OF THE FAMILY AMPHARETIDAE (POLYCHAETA)

By

J. H. DAY

*Zoology Department, University of Cape Town*

## CONTENTS

	PAGE
Introduction .. .. .	97
Discussion of diagnostic characters ..	98
Division into sub-families and genera ..	103
Sub-family Melinninae .. .. .	106
Table of type-species .. .. .	104
Key to genera .. .. .	106
Generic definitions .. .. .	106
Sub-family Ampharetinae .. .. .	107
Table of type-species .. .. .	108
Key to genera .. .. .	112
Generic definitions .. .. .	113
Summary .. .. .	119
References .. .. .	119

## INTRODUCTION

The most complete account of the family Ampharetidae is that of Hesse (1917). He reviews earlier work including that of Malmgren (1865) and Fauvel (1897) on family and generic characters, Nilsson (1912) on the nervous system, Wiren (1885) on the alimentary canal, and Meyers (1887) on the nephridia. After giving further evidence from his own researches on the nephridia and structure of the stomach he goes on to discuss generic characters. While he follows the main lines laid down by Malmgren he finds that the genera were so narrowly defined by the latter worker that they seldom include more than one or two species, so that broader generic definitions are necessary. He criticizes Fauvel's work on the enumeration of the anterior segments and his genera as being based partly on internal anatomical characters. Surprisingly enough Hesse's own generic divisions may be criticized on the same lines. Although he stresses that the number of nephridia may vary from species to species in the same genus he has grouped the genera largely on the relative sizes and arrangement of these internal structures.

Since the publication of Hesse's work many new genera have been erected, particularly by Augener (1918), Chamberlin (1919), Benham (1921), Annenkova (1930), Caullery (1944) and Eliason (1955). In general these later workers focused attention on external features, particularly the development

MAY 25 1964

of the paleae and the number of thoracic setigers, and they do not describe the nature of the nephridia nor the morphology of the stomach. As a result it is difficult to correlate the genera they describe with those defined in Hesse's monograph. There is also another source of confusion. Nilsson and Hesse recognize only a single two-ringed buccal segment in front of the paleae or first branchiferous segment, so that the latter becomes segment II. This interpretation is followed by Annenkova (1930), Eliason (1955), and Uschakov (1957). On the other hand Malmgren (1865), Fauvel (1897 and 1927) and Caullery (1944) recognize two segments in front of the paleae, so that the latter which also bears the first pair of branchiae becomes segment III. At first sight it would seem of little taxonomic importance whether the first branchiferous segment is labelled segment II or III, but as many workers do not state which system of numbering they are using, statements such as 'setae present on segment III' or 'nephridia absent from segment V' or 'notosetae of segment XIII modified' lead to confusion.

To date about 150 species have been described, distributed through about 49 genera. Fifty-six species are ascribed to the three genera *Amphicteis*, *Amage*, and *Ampharete*, and the remaining 94 are distributed through the remaining 46 genera, many of which are monotypic. The need for revision is obvious.

In the account that follows the various diagnostic characters are discussed, the grouping of genera is considered, and tables and keys are provided for the whole family.

I wish to thank Dr. Olga Hartman for constructive criticism during the preparation of this paper, and both Mr. R. Sims of the British Museum and Mr. J. B. Kirkegaard of the Copenhagen Museum for allowing me to examine material housed in their respective institutions. The Trustees of the South African Museum are grateful to the South African Council for Scientific and Industrial Research and the University of Cape Town for grants in aid of publication.

#### DISCUSSION OF DIAGNOSTIC CHARACTERS

*The head and buccal tentacles.* The Ampharetidae are deposit feeders and the food particles are collected by mobile projections that arise from the roof of the buccal cavity. The most common type are buccal tentacles which are either smooth with a longitudinal groove on one side as in the Terebellidae or papillose; often these papillae are pinnately arranged, but not always, and buccal tentacles of this type are best described under the more general term 'papillose'. Apart from tentacles, folded or probosciform feeding membranes have been described in *Amythas membranifera* Benham and *Pabits deroderus* Chamberlin. An examination of *Isolda whydahensis* Augener showed a long ribbon-shaped structure protruding from the mouth with the distal end split into a number of short tentacles.

As stated, these feeding organs arise from the roof of the buccal cavity and in some cases the mouth cavity leads straight back into the pharynx; in other cases, however, an internal shelf or horizontal septum separates the tentacular

cavity above from the pharynx below. According to Hesse this septum corresponds to the dorsal lip of the Terebellidae.

Above the mouth there is a hood-shaped lobe which Hesse refers to as the 'Tentakelmembran' and Fauvel as the prostomium. Since it bears the eyes and nuchal grooves and contains the cerebral ganglia the latter term will be used here. In some genera it also bears a pair of glandular ridges which diverge anteriorly and project from the antero-lateral margins as a pair of blunt processes.

When the buccal tentacles are retracted the prostomium may appear bluntly pointed with obvious lateral grooves, so that the whole prostomium (or tentacular membrane) has been described as trilobed. When the buccal tentacles are fully extended, however, the whole head is stretched, the anterior margin is straightened, and the lateral grooves disappear. This mobility of the head means that the exact shape of the prostomium is of little systematic value. The glandular ridges, however, are always recognizable and the eye-spots can usually be found.

*The segmentation of the head region.* As described earlier (Day 1961) the region behind the prostomium is telescoped and the segments are distorted. The branchiae are often grouped on a transverse branchial ridge which partially overhangs the segments immediately behind the prostomium. The ventral surface in *Melinna* and related genera is distorted by the formation of a pair of lateral folds which slope back from the mouth region towards the dorsum of segment VI where they unite to form a transverse dorsal crest. On the basis of dissection and examination of external features I have accepted the interpretation of Malmgren, Fauvel, and others that there are two achaetous segments preceding the branchiae in all genera. The first branchiferous segment, which bears the paleae in some genera, thus becomes segment III.

*The branchiferous region* (segments III–VI). In the more primitive genera, including *Phyllocomus*, *Melinna*, *Isolda*, *Amphicteis* and *Ampharete*, there are four pairs of gills. Dissection of the blood-vessels of *Amphicteis gunneri*, described by Day (1961), showed that the four gills are supplied by four blood-vessels corresponding to segments III, IV, V and VI. With the telescoping of the anterior segments, however, there is a tendency for the four pairs of gills to be grouped on the dorsal surface of segments III and IV. In *Phyllocomus* the first two pairs are on segment III and the last two pairs are segmentally arranged. The same arrangement has been reported in *Amage auriculata* and *Amphicteis posterobranchiata*. In other genera the arrangement may be 2 : 2 or 3 : 1 where three pairs of gills are arranged in a transverse row across segment III with the fourth pair immediately behind.

In many genera the primitive number of four pairs of gills has been reduced to three and in *Auchenoplax* Ehlers and its synonym *Melinnoides* Benham only two pairs have been reported.

The gills may be separate from one another or united by a basal web.

Commonly this web unites only the first three pairs of gills, leaving the fourth posterior pair free. The gills may be smoothly cylindrical in shape or may develop lateral papillae or flanges or even a series of lateral lamellae. Commonly the branchial papillae are arranged in two lateral rows, and such branchiae have been termed bipinnate, but this is not always the case. In *Pterampharete luderitzi*, for example, numerous irregularly arranged papillae arise from the anterior surface of the branchial axis. In generic descriptions such gills are best described by the broader term papillose. Similarly the lateral lamellae of such forms as *Phyllamphicteis collaribranchis* Augener and *Phyllocomus (olim Schistocomus) hiltoni* (Chamberlin) may be arranged in one or more rows.

The telescoping of the branchiferous region often results in the fusion of segments and the loss of setae. In *Isolda* and *Melinna* of the sub-family *Melinninae* the neurosetae of the four segments III–VI are present though those of segment VI may be lacking in some species. Segment III never has notosetae, and segment IV has notosetae in the form of stout hooks behind the gills, but the notosetae of segments V and VI are either small or absent. In *Melinnopsis* McIntosh the hooks of segment IV are lacking, but notopodial capillaries are present on segments V and VI.

In the sub-family *Ampharetinae* neurosetae are never developed on segments III to VI. In a few cases all four segments may be distinct, but usually segments III and IV are fused and occasionally segments III, IV and V. The notosetae are variously developed. In primitive forms such as *Amphicteis* the notosetae of segment III are enlarged to form stout paleae and those of segments IV–VI are all present as normal capillaries. Often, however, the capillary notosetae of IV and V are small or absent. Similarly the notosetae of segment III may remain small and not form paleae, or may be entirely lacking. In *Sabellides*, for example, the notosetae of segment III are either absent or represented by small capillaries, segment IV is fused to segment III and lacks setae, and the first normal capillaries are on segment V. In *Neosabellides elongatus* there are no setae on segments III and IV, and in *Paramage madurensis* Caullery reports that the first bundle of notosetae appears on segment VI though earlier achaetous notopodia remain. In view of the many variations in the setation of the branchiferous segments III to VI and the difficulty of deciding whether small setae present on the fused third and fourth segments represent small paleae of segment III or small capillaries of segment IV, it would seem undesirable to base generic divisions on the presence or absence of paleae as has been done in the past.

*Internal characters: diaphragm, nephridia, stomach.* Apart from a few minor details no new researches are reported here under this heading. The information concerning the type-species of each genus has been extracted from Hesse (1917), supplemented by additional information from Annenkova (1930), and has been summarized in tables I and II. In several genera no information is available concerning the internal anatomy.

The coelomic cavity of the first few segments is separated from the rest of the thorax by a relatively stout septum or diaphragm. According to Hesse this

always lies between segments IV and V, but according to the enumeration of segments adopted here it lies between segments V and VI. Following Hessle's terminology the nephridium in segment V (Hessle's segment IV) is termed the anterior nephridium, and all later ones are posterior nephridia.

Never more than five pairs of nephridia have been reported; in some cases there are only three and in exceptional cases only two. At first sight the number of nephridia would appear to provide a reasonable basis for classification, but as Hessle himself has pointed out, their distribution is not constant. In some cases four pairs may be present in segments V to VIII, in others the nephridium in VI is missing and the four pairs are in V, VII, VIII and IX; again V may be missing and the four pairs are in segments VI-IX. The same variability occurs in those species in which there are only three pairs of nephridia. They are located in segments V, VI and VII in *Sosanopsis wireni*, *Parhypania brevispina* and *Hypania invalida*, and in segments V, VII and VIII in *Sabellides octocirrata*. Even when the number is reduced to two pairs there are differences in arrangement. In *Phyllocomus crocea* and *Schistocomus* (= *Phyllocomus*) *hiltoni* the nephridia are in segments VII and VIII, and in *Lysippides fragilis* they are in segments V and VII.

Hessle further reports that the number of pairs of nephridia is not constant within the single genus *Ampharete* but may vary from two pairs situated in segments V and VII for *A. acutifrons* and *A. arctica* to four pairs situated in segments V, VII, VIII and IX for *A. lindstromi* and *A. kerguelensis*. The numbering of the segments given here is of course one higher than that given by Hessle.

In view of this variability of the nephridia and the labour involved it would seem undesirable to base generic divisions on these structures as has been done by Hessle. None the less the nephridial papillae of the anterior nephridia in segment V are occasionally visible. In *Sabellides* and *Pterampharete* the ducts are elongated dorsally and two nephridial papillae may be found on the branchial ridge between the two groups of gills. In *Anobothrus*, *Sosane* and *Asabellides* the ducts open on a single nephridial papilla in the same position. These characters, while not in themselves sufficient for generic distinction, provide useful confirmatory evidence.

The alimentary canal is normally a fairly straight tube divided into pharynx, oesophagus, stomach and intestine. At the anterior end of the stomach where it joins the oesophagus a pair of lateral pouches project forward in *Ampharete*, *Microsamytha* and *Anobothrus*, but not in *Melinna* nor fourteen other genera which have been investigated by Wiren (1885), Hessle (1917) or Annenkova (1930). There is also a curious invagination of the ventral wall of the stomach of some genera, which is referred to by Hessle as an 'innere Blind-sack' and is here termed an internal diverticulum. It has been found in *Amage*, *Amphicteis*, *Amphisamytha* and *Hypania*, but not in fourteen other genera which have been examined. Since such characters demand dissection they are of doubtful value in practical classification.

*The posterior thorax.* As stated earlier, the first branchiferous (or paleal) segment is reckoned here as segment III and the branchiferous region as extending over segments III to VI. The beginning of the posterior thorax on segment VII is marked by the first appearance of uncini in the neuropodia in all genera. It is the most important and most easily recognizable landmark on the body. Segments anterior to it may be distorted or fused and individual segments may lack notosetae or nephridia, but segment VII and the posterior thoracic segments are always well defined and fully developed. The maximum number is 14 and the minimum number is 11 in all genera except *Mugga*, where there are 9. It is suggested therefore that the numbers of such uncigerous thoracic segments provide better generic characters than the total number of thoracic setigers which have led to such confusion.

The notopodia of the posterior thorax are conical projections which in *Amphicteis* and several other genera bear a terminal papilla or 'notopodial cirrus'. The neuropodia are short projecting pinnules and in a few genera such as *Phyllocomus* they bear a superior papilla or cirrus above the row of uncini.

The notosetae are winged capillaries which are very uniform in shape with few exceptions. In *Anobothrus* the 8th uncigerous segment has its notopodium elevated and the tips of the notosetae are minutely spinulose. In *Mugga* the same phenomenon occurs on uncigerous segment 9, and in *Sosane* and *Sosanopsis* it occurs on uncigerous segment 12.

The uncini are flattened tooth plates of various shapes but are all roughly triangular to quadrangular, with one or more series of teeth above the base. In the *Melinninae* there is always a single series of teeth, but in the *Ampharetinae* the teeth of the thoracic uncini may be arranged in 1, 2 or as many as 5 vertical rows. Abdominal uncini often have more rows of teeth. The base of the uncinus may be long and well separated from the tooth rows, or it may be short and curve up towards the lowest tooth to form a bluntly rounded prow. Hesse and others have quoted such differences as generic distinctions, but to me they appear to be no more than specific characters, for the shapes vary very considerably. The number of tooth rows seems to be more important when there are only one or two vertical series, but when there are three or more they lose their value.

*The abdomen.* There is seldom any abrupt narrowing between thorax and abdomen, merely a change in the parapodia. This, however, is well marked. The notosetae disappear and the notopodia are either reduced or absent. In *Melinna*, *Amphicteis*, *Amage*, *Phyllocomus* and many other genera, rudimentary notopodia persist on abdominal segments, and this is regarded as the more primitive condition. In *Ampharete*, *Sabellides* and others, notopodia are entirely lacking. Where notopodial cirri are present on the thorax they tend to persist on the rudimentary notopodia of the abdomen, as may be seen in *Amphicteis* and *Amage*. Similarly, where neuropodial cirri are present on the thorax these also are continued on the abdomen. Actually the uncigerous pinnules very often have an obscure superior papilla and this tends to become better marked towards

the end of the abdomen. This is particularly well shown by *Sabellides octocirrata* where the superior papillae become long cirriform projections.

The whole abdomen consists of a variable number of segments. In the *Melinninae* there is always a large number of segments, the extremes being a minimum of 20 in *Melinnexis antarctica* and a maximum of 90 in *Irana heterobranchia*. In a few primitive genera of the *Ampharetinae* there are also large numbers of abdominal segments. Thus *Phyllocomus crocea* has 45 but in the great majority of genera the number is much less, 12–18 being the usual range. It is doubtful whether the exact number is constant for a species, and certainly it is not of generic importance.

The abdominal uncini are more or less similar to those of the thorax but usually there are more teeth arranged in more vertical rows or transverse arcs.

The *pygidium* is terminal and may be encircled by a number of low indistinct papillae or may bear a reduced number of longer anal cirri.

#### DIVISION INTO SUB-FAMILIES AND GENERA

Hessle (1917) does not divide the Ampharetidae into sub-families, although his remarks on p. 90 show that he is inclined to separate *Melinna* and *Isolda* from other genera in this way. Chamberlin (1919) proposed three sub-families, namely the *Melinninae* with dorsal hooks behind the gills but no paleae, the *Ampharetinae* with paleae but no hooks, and the *Samythininae* with neither paleae nor hooks.

Since the publication of Chamberlin's monograph many new genera have been described. The diagnostic characters of the various type-species are set out in tables I and II, and it will be immediately obvious that there are several genera related to *Melinna*. Not all of these possess dorsal hooks behind the gills, but they all possess fine acicular neurosetae in segments III, IV, V and often VI. I agree with Hessle in regarding this as an important and primitive feature which links the *Amphaetidae* to *Terebellidae* and other genera of the *Trichobranchidae* and through them to the *Terebellidae*. I have therefore enlarged Chamberlin's diagnosis of the *Melinninae* to include all *Ampharetidae* with acicular neurosetae in segments III–VI whether they possess dorsal hooks or not. The amended characters of the sub-family are given later.

Chamberlin's sub-families *Ampharetinae* and *Samythininae* are distinguished by the presence or absence of paleae. The variability of these setae has been described earlier; as the accompanying tables show, the setation of the whole branchial region is not sufficiently reliable for the distinction between genera, let alone sub-families. Several other possible groupings of genera have been tried on the basis of the number of branchiae, the number of uncigerous thoracic segments and the number of tooth rows on the thoracic uncini. None of them were satisfactory in that they distinguished groups of genera with many characters in common. It was concluded that all the *Ampharetidae* apart from the *Melinninae* must be included within the sub-family *Ampharetinae* and that Chamberlin's sub-family *Samythininae* must be sunk.

TABLE I.  
CHARACTERS OF GENERA AND TYPE-SPECIES OF SUB-FAMILY MELINNINAE

*a* = neuropodial acicular setae, *c* = small notopodial capillaries, H = notopodial hooks, (*a*) or (*c*)—letters in parenthesis indicate setae may be present or absent.

Genus and type-species	Buccal tentacles	Setation of segments III-VI			Thoracic segments			Nephridia	Dorsal crest VI			Lateral pouches on stomach	Internal diverticulum to stomach	Abdominal segments	Abdominal notopodia	Remarks
		III	IV	V	VI	Thoracic uncini	Tooth rows of		Uncigerous	on segment	yes					
<i>Moyanus</i> Chamberlin 1919 (type <i>M. explorans</i> Cham. 1919)	<i>see remarks</i>	H	H	?	12	1	4 prs. (all smooth)	?	yes	?	c. 65	no	no	no	Prostomium probosciform with a tentaculiferous lobe below it.	
<i>Melinna</i> Mahngren 1866 (type <i>Sabellides cristata</i> Sars 1856)	smooth	H	c	c	14	1	4 prs. (all smooth)	4 prs. in VI-IX	yes	no	30-50	feeble	no	No anal cirri, merely circle of indistinct papillae.		
<i>Isolda</i> Müller 1858 (type <i>I. putchella</i> Müll. 1858)	smooth	H	c	c	13	1	4 prs. (2 smooth, 2 papillose)	?	yes	?	25-36	no	no	<i>I. rilydabensis</i> Aug. has a retractile tentaculiferous lobe.		
<i>Iraia</i> Wesenberg-Lund 1949 (type <i>I. heterobranchiata</i> W.-L. 1949)	smooth	H	a	a	12	1	3 prs.	?	yes	?	c. 90	no	no			
<i>Oeorpata</i> Kinberg 1867 (type <i>O. armata</i> Klb. 1867)	?	H	?	?	?	1	2 prs. (papillose)	?	yes	?	?	?	?	?	? a synonym of <i>Isolda</i> .	
<i>Melinnopsis</i> McIntosh 1885 (type <i>M. atlantica</i> McL. 1885)	smooth	c	c	?	10	1	4 prs. (all smooth)	?	no	?	?	25-30	?	?		
<i>Melinnexis</i> Amcnkova 1930 (type <i>M. arctica</i> Ann. 1930)	smooth	c	c	c	14	1	4 prs. (all smooth)	4 prs. in V, VII, VIII, IX	?	?	?	20-30	?	?	1 very large tentacle, 1 pr. long anal cirri. ? synonym of <i>Melinnopsis</i> .	
<i>Melinnides</i> Wesenberg-Lund 1950 (type <i>M. rostrata</i> W.-L. 1950)	smooth	c	c	c	12	1	4 prs. (all smooth)	?	yes	?	?	40-50	feeble	no	Prostomium a stout rostrum ? a synonym of <i>Melinnopsis</i> .	
<i>Melinnopsides</i> Day gen. nov. (type <i>Melinnopsis capensis</i> Day 1955)	smooth	c	c	c	10	1	3 prs. (all smooth)	?	no	?	?	?	?	28	no	



The reliability of the various characters which may be used to distinguish genera has been discussed earlier. To be of practical value in a taxonomic key such characters must not only be constant within a group of species which are obviously similar in other ways, but they must also be easily seen when sorting a sample. It is suggested that among such characters are the number of gills, and the number of uncigerous thoracic segments, the presence of glandular ridges on the prostomium and the possession of notopodial cirri. These have therefore been used as the main basis for grouping genera with the addition of several other features in specialized cases. It is tempting to use the obvious ornamentation of the gills as well as their number, but after careful consideration this was omitted for it would have increased the number of monotypic genera without breaking up the three large genera *Amphicteis*, *Amage* and *Ampharete*. In any case the gills are often missing so that their ornamentation cannot be decided, and only the scars remain to determine their number.

As stated earlier, 49 genera are currently recognized as valid. In the accompanying key these have been reduced to 33 of which 6 are assigned to the *Melinninae* and 27 to the *Ampharetinae*. This means that 16 genera have been sunk, and reference to the tables will show that 11 of these were monotypic and the other 5 contained 2 species each. One new genus has been erected in the sub-family *Melinninae*.

It is hoped that this revision will make the recognition of genera much simpler, but inevitably it will be found that many species have been assigned to the wrong genus. This is certainly true of two species assigned to *Lysippe* by myself and one referred with hesitation to *Neosabellides*.

#### *Key to sub-families*

1. Segments III-V (or III-VI) with fine acicular neurosetae. No palcae.  
     Post-branchial hooks sometimes present   ..   ..   ..   ..   ..   ..   ..   ..   .. *Melinninae*
- Segments III-VI without neurosetae. No post-branchial hooks. Palcae  
     sometimes present   ..   ..   ..   ..   ..   ..   ..   ..   .. *Ampharetinae*

SUB-FAMILY **Melinninae** Chamberlin 1919 (characters amended)

Buccal tentacles never pennate or papillose, usually smooth with a groove along one side. Paleae absent. One or two pairs of stout notopodial hooks may be present behind the gills. Small acicular neurosetae embedded in segments III, IV and often V and VI. Uncini are from segment VII and always have a single series of teeth. Numerous (20-90) abdominal segments.

*Key to genera of Melinninae*

- |   |                               |
|---|-------------------------------|
| 1. Stout notopodial hooks behind the gills .. .. .                | 2                             |
| No notopodial hooks .. .. .                                       | 5                             |
| 2. Notopodial hooks on two segments. Prostomium elongated .. ..   | <i>Moyanus</i><br>(doubtful)  |
| Notopodial hooks on segment IV only. Prostomium short .. ..       | 3                             |
| 3. 4 pairs of gills .. .. .                                       | 4                             |
| 3 pairs of gills, including both smooth and papillose forms .. .. | <i>Irana</i>                  |
| 2 pairs of papillose gills .. .. .                                | <i>Oeorpata</i><br>(doubtful) |
| 4. All gills smooth .. .. .                                       | <i>Melinna</i>                |
| Some gills smooth, some papillose .. .. .                         | <i>Isolda</i>                 |
| 5. 4 pairs of smooth gills .. .. .                                | <i>Melinnopsis</i>            |
| 3 pairs of smooth gills .. .. .                                   | <i>Melinnopsides</i>          |

## MOYANUS Chamberlin 1919

Prostomium elongated and probosciform. Buccal tentacles mounted on long tongue-shaped projection. Four pairs of smooth gills. A dorsal crest on segment VI. Segments III-VI with notopodial hooks on segments IV and V and fine acicular neurosetae on segments III, IV and V. Twelve uncigerous thoracic segments and about 65 abdominal ones. Thoracic uncini with a single series of teeth.

Type-species *Moyanus explorans* Chamberlin 1919.

## MELINNA Malmgren 1866

Buccal tentacles smooth with a groove on one side. Four pairs of smooth gills. A dorsal crest across segment VI. Segments III-VI with notopodial hooks on segment IV and notopodial capillaries on segments V and VI. Fine acicular neurosetae on segments III-V and sometimes on VI as well. Fourteen uncigerous thoracic segments and 30-50 abdominal ones. Thoracic uncini with a single series of teeth.

Type-species *Sabellides cristata* Sars 1851.

## ISOLDA Müller 1858

Buccal tentacles smooth with a groove on one side. Four pairs of gills of which 2 are smooth and 2 are papillose. A dorsal crest across segment VI. Segments III-VI with notopodial hooks on segment IV and notopodial capillaries on segments V and VI. Fine acicular neurosetae on segments III-V and sometimes on VI as well. Twelve to 13 uncigerous thoracic segments and 25-36 abdominal ones. Thoracic uncini with a single series of teeth.

Type-species *Isolda pulchella* Müller 1858.

## IRANA Wesenberg-Lund 1949

Buccal tentacles smooth. Three pairs of gills of which 1 is smooth and 2 are papillose. A dorsal crest across segment VI. Segments III–IV with notopodial hooks on segment IV and fine acicular neurosetae on segments III–VI. Twelve uncigerous thoracic segments and about 90 abdominal ones. Thoracic uncini with a single series of teeth.

Type-species *Irana heterobranchia* Wesenberg-Lund 1949.

## OORPATA Kinberg 1867

An incompletely described genus with two pairs of pennate gills; notopodial hooks on segment IV; many abdominal segments; uncini with a single series of teeth.

Type species *Oeorpata armata* Kinberg 1867.

## MELINNOPSIS McIntosh 1885

Synonyms *Melinnexis* Annenkova 1930 and *Melinnides* Wesenberg-Lund 1950.

Buccal tentacles smooth with a groove along one side. Four pairs of smooth gills. Dorsal crest on segment VI present or absent. Segments III–VI without notopodial hooks on segment IV but with notopodial capillaries on segments V and VI. Fine acicular neurosetae on segments III–V and sometimes on VI as well. Ten to 14 uncigerous thoracic segments and 25–50 abdominal ones. Thoracic uncini with a single series of teeth.

Type-species *Melinnopsis atlantica* McIntosh 1885.

## MELINNOPSISIDES gen. nov.

Buccal tentacles smooth with a groove along one side. Three pairs of smooth gills. No dorsal crest on segment VI. Segments III–VI without notopodial hooks on segment IV but with notopodial capillaries on segments V and VI. Fine acicular neurosetae on segments III–V. Ten uncigerous thoracic segments and about 30 abdominal ones. Thoracic uncini with a single series of teeth.

Type-species *Melinnopsis capensis* Day 1955.

SUB-FAMILY **Ampharetinae** Chamberlin 1919 (characters amended)

(including *Samythinae* Chamberlin 1919)

Buccal tentacles either smooth with a groove along one side or papillose. Paleae present or absent. No notopodial hooks behind the gills. Neurosetae absent from segments III to VI. Neuropodial uncini start on segment VII and may have one or more series of teeth. Few (8) to many (60) abdominal segments.

TABLE II.  
CHARACTERS OF GENERA AND TYPE-SPECIES OF SUB-FAMILY AMPHARETINAE

C or c = large or small notopodial capillaries. P or p = large or small palcae on segment III.  
(c) or (p) — letters in parenthesis indicate setae may be present or absent.

Genus and type-species	Glandular ridges on prostomium	Buccal tentacles	Setation of segments III-VI	Uncingerous thoracic segments	Tooth rows on thoracic uncini	Branchiae	Nephridia	Notopodial cirri	Lateral pouches on stomach	Internal diverticulum to stomach	Abdominal segments	Abdominal notopodia	Remarks
			III IV V VI										
<i>Amphictetis</i> Grube 1851 (type <i>Amphitrite gunneri</i> Sars 1835)	yes	smooth	P C C C	14	1	4 prs. (all smooth)	5 prs. in V-IX	yes	?	?	15	yes	1 pair anal cirri.
<i>Paramphictetis</i> Caullery 1944 (type <i>Sabellides angustifolia</i> Gr. 1878)	yes	? papillose	- c c C	14	1	4 prs. (all smooth)	?	yes	?	?	15	small	1 pair anal cirri.
<i>Anagis</i> Malmgren 1866 (type <i>A. auriculata</i> Malm. 1866)	yes	smooth	- c C C	11	1-2	4 prs. (all smooth)	4 prs. in V-VIII	yes	no	yes	8	yes	2 pairs anal cirri.
<i>Parthypania</i> Annenkova 1928 (type <i>Amphictetis brevispinus</i> Gr. 1860)	yes	smooth	P C C C	14	1	4 prs. (all smooth)	3 prs. in V-VII	no	no	no	16-20	feeble	
<i>Hypania</i> Ostromoov 1897 (type <i>Amphictetis invalida</i> Gr. 1860)	yes	smooth	P c C C	13	?	4 prs. (all smooth)	3 prs. in V-VII	no	no	yes	15-30	yes	
<i>Grabianella</i> McIntosh 1885 (type <i>G. antarctica</i> McL. 1885)	yes	smooth	- c C C	11	2	4 prs. (all smooth)	?	?	?	?	25	yes	1 pair anal cirri.
<i>Paioa</i> Chamberlin 1919 (type <i>P. abyssii</i> Cham. 1919)	no	smooth	p C C C	14	2-3	4 prs. (all smooth)	?	yes	?	?	20	small	? synonym of <i>Ptyllamphictetis</i> .
<i>Ptyllamphictetis</i> Augener 1918 (type <i>P. collaribranchis</i> Aug. 1918)	no	smooth	P c c C	14	1	4 prs. (2 smooth, 2 lamellate)	?	yes	?	?	15	no	1 pair anal cirri.
<i>Lysipptides</i> Hesse 1917 (type <i>Amphictetis fragilis</i> Wollebaek 1912)	no	smooth	p c C C	14	3	4 prs. (2 smooth, 2 flanged)	2 prs. in V & VII	no	no	no	8	yes	

<i>Amphisamytha</i> Hessele 1917 (type <i>A. japonica</i> Hessele 1917)	no	smooth	-	c C C	14	1	4 prs. (all smooth)	4 prs. in V-VIII	no	no	yes	14	yes	? synonym of <i>Lysip- pides</i> .
<i>Hypaniola</i> Annenkova 1928 (type <i>Amphictetis kovalen- skii</i> Grimm 1877)	no	smooth	p	C C C	14	?	4 prs. (all smooth)	3 prs. in V-VII	no	no	?	23	?	? synonym of <i>Lysip- pides</i> .
<i>Lysippe</i> Malmgren 1866 (type <i>L. labiata</i> Malm. 1866)	no	smooth	p	c C C	13	2	4 prs. (all smooth)	4 prs. in V-VIII	no	no	no	14	yes	1 pair anal cirri.
<i>Pterolysippe</i> Augener 1918 (type <i>P. bipennata</i> Aug. 1918)	no	smooth	p	c c C	13	3	4 prs. (3 smooth, 1 papillose)	?	no	?	?	?12-17	?	? synonym of <i>Lysippe</i> .
<i>Ampharete</i> Malmgren 1866 (type <i>A. acutifrons</i> Gr. 1866)	no	papillose	P	- C C	12	2	4 prs. (all smooth)	2 prs. in V & VII	no	yes	no	12	no	1 pair anal cirri.
<i>Asabellides</i> Annenkova 1929 (type <i>Sabellides sibirica</i> Wiren 1883)	no	papillose	-	- C C	12	2	4 prs. (all smooth)	?	no	yes	?	21	yes	1 pair anal cirri.
<i>Pseudosabellides</i> Berkeley & Berkeley 1943 (type <i>P. littoralis</i> B. & B. 1943)	no	papillose	-	- C C	12	2	4 prs. (all smooth)	?	no	?	?	18-20	no	? synonym of <i>Asabel- lides</i> .
<i>Phyllocomus</i> Grube 1878 (type <i>P. crocea</i> Gr. 1878)	no	smooth	-	C C C	12	1	4 prs. (flanged)	2 prs. in VII & VIII	yes	no	no	45	yes	A circle of anal papillae.
<i>Schistocomus</i> Chamberlin 1919 (type <i>S. hiltoni</i> Cham. 1919)	no	smooth	-	C C C	12	1	4 prs. (1 smooth, 3 lamellate)	2 prs. in VII & VIII	no	?	?	30-53	yes	2 pairs anal cirri. ? synonym of <i>Phyllocomus</i> .
<i>Sosane</i> Malmgren 1866 (type <i>S. sulcata</i> Malm. 1866)	no	smooth	P	c C C	12	1	4 prs. (all smooth)	4 prs. in V, VII, VIII, IX	no	no	no	13	small	1 nephridial papilla between branchiae. Notosetae of last thoracic segment modified.
<i>Amoebothrus</i> Levisen 1883 (type <i>Ampharete gracilis</i> Malm. 1866)	no	smooth	P	c C C	12	2	4 prs. (all smooth)	4 prs. in V, VII, VIII, IX	no	yes	no	13	yes	1 nephridial papilla between branchiae. Notosetae of un- cigerous thoracic segment 8 modified. ? synonym of <i>Sosane</i> .

TABLE II—continued.

Genus and type-species	Glandular ridges on prostomium	Buccal tentacles	Setation of segments III-VI		Ungiferous thoracic segments		Tooth rows on thoracic unci	Branchiae	Nephridia	Notopodial cirri	Lateral pouches on stomach	Internal diverticulum to stomach	Abdominal segments	Abdominal notopodia	Remarks
			III	IV	V	VI									
<i>Sosamopsis</i> Hesse 1917 (type <i>S. wizeni</i> Hesse 1917)	no	smooth	-	c	C	C	12	3	4 prs. (all smooth)	3 prs. in V, VI, VII	no	no	11	yes	Notosetae of uncigerous thoracic segment 12 modified.
<i>Paramage</i> Caullery 1944 (type <i>P. madurensis</i> Caull. 1944)	no	smooth	-	-	-	C	11	1	4 prs. (all smooth)	?	?	?	11	no	Notopodia but no setae on segments IV and V.
<i>Sabellides</i> M.-Edwards 1938 (type ? <i>Sabella octocirrata</i> Sars 1835)	no	papillose	(p)	-	C	C	11	1	4 prs. (all smooth)	3 prs. in V, VII, VIII	no	no	c. 17	no	2 nephridial papillae between branchiae.
<i>Pterampharate</i> Augener 1918 (type <i>P. luderitzi</i> Aug. 1918)	no	papillose	P	-	C	C	11	2	4 prs. (all papillose)	3 prs. in V, VII, VIII	?	?	11	no	2 nephridial papillae between branchiae. ? synonym of <i>Sabellides</i> .
<i>Samolthopsis</i> McIntosh 1885 (type <i>S. grabet</i> Mel., 1885)	yes	smooth	-	c	C	C	14	3-5	3 prs. (smooth)	?	?	?	22	yes	1 pair anal cirri.
<i>Samolthia</i> Malmgren 1866 (type <i>Sabellides sexcirrata</i> Sars 1856)	no	smooth	-	C	C	C	14	2-3	3 prs. (smooth)	3 prs. in V-VII	no	no	13	yes	1 pair anal cirri.
<i>Anylthas</i> Benham 1921 (type <i>A. membranifera</i> Ben. 1921)	no	folded membrane	-	c	C	C	14	2	3 prs. (smooth and grooved)	?	?	?	14+	no	
<i>Aryandus</i> Kinberg 1867 (type <i>A. gracilis</i> Klb., 1867)	?	?	P	c	C	C	14	?	3 prs.	?	?	?	?	?	
<i>Microsamolthia</i> Augener 1928 (type <i>M. ryehtiana</i> Aug. 1928)	no	smooth	-	C	C	C	13	?	3 prs. (all smooth)	?	?	?	? 15	?	
<i>Alknaria</i> Horst 1920 (type <i>A. romijni</i> Horst 1920)	?	?	-	C	C	C	13	?	3 prs. (all smooth)	?	?	?	? 13	?	? synonym of <i>Microsamolthia</i> . Head not known.

<i>Melanimpharete</i> Annenkova 1937 (type <i>M. eoa</i> Annen. 1937)	no	papillose	P C C C	12	?	3 prs. (all smooth)	3 prs. in V, VII, VIII	no	yes	?	many	?	A dorsal ridge between segments VI and VII.
<i>Nesabellides</i> Hesse 1917 (type <i>Sabellides elongatus</i> Ehl. 1913)	no	papillose	- C C	12	2	3 prs. (all smooth)	4 prs. in V, VII, VIII, IX	no	yes	no	19	small	1 pair anal cirri.
<i>Pabitis</i> Chamberlin 1919 (type <i>P. deroderus</i> Cham. 1919)	no	smooth	- c C C	12	2	3 prs. (all smooth)	?	?	?	?	?	yes	Tentacular lobe prolonged.
<i>Sanythella</i> Verrill 1873 (type <i>S. elongata</i> Ver. 1873)	no	smooth	- C C C	12	1	3 prs. (smooth and flanged)	?	no	?	?	29-35	?	A circle of anal papillae.
<i>Eusanytha</i> McIntosh 1885 (type <i>E. pacifica</i> McL. 1885)	no	smooth	- C C C	12	?1 ?2	3 prs. (all smooth)	?	no	?	?	31	no	
<i>Eclysippe</i> Eliason 1955 (type <i>Lysippe vanelli</i> Fauvel 1936)	no	smooth	P c c C	12	2	3 prs.* (all smooth)	?	few	?	?	12	no	*Fauvel 1936 gives 4 pairs of gills for <i>L. vanelli</i> .
<i>Glyphanostomum</i> Levinsen 1883 (type <i>Sanytha pallascens</i> Theel 1878)	no	smooth	- C C C	11	2	3 prs. (all smooth)	4 prs. in V-VIII	no	no	no	25	?	1 pair anal cirri.
<i>Amythasides</i> Eliason 1955 (type <i>A. macroglossus</i> Eli. 1955)	no	smooth	P c C C	11	3-6	3 prs. (unknown)	?	no	?	?	12	no	A very few stout tentacles. ? synonym of <i>Glyphanostomum</i> .
<i>Mugga</i> Eliason 1955 (type <i>M. wahrbergi</i> Eli. 1955)	no	smooth	P c C C	9	4-5	3 prs. (? smooth)	?	no	?	?	8+	?no	Notosetae of uncigerous thoracic segment 9 dorsal and setae modified.
<i>Auchenoplax</i> Ehlers 1887 (type <i>A. crinita</i> Ehl. 1887)	no	smooth	- C C	12	1	2 prs. (smooth)	?	no	?	?	12-15	?	First row of uncini long and ventrally placed.
<i>Melanooides</i> Benham 1921 (type <i>M. nelsoni</i> Ben. 1921)	no	smooth	- C C	12	2	2 prs. (smooth)	?	?	?	?	12	?	First row of uncini long. ? synonym of <i>Auchenoplax</i> .

*Key to genera of Ampharetinae*

1.	4 pairs of gills	..	..	..	..	..	..	..	2
	3 pairs of gills	..	..	..	..	..	..	..	13
	2 pairs of gills; first row of uncini very long	..	..	..	..	..	..	..	<i>Auchenoplax</i>
2.	Glandular ridges on prostomium. Buccal tentacles always smooth and grooved along one side	..	..	..	..	..	..	..	3
	No glandular ridges on prostomium. Buccal tentacles either smooth or papillose	..	..	..	..	..	..	..	6
3.	Notopodial cirri present	..	..	..	..	..	..	..	4
	No notopodial cirri	..	..	..	..	..	..	..	5
4.	14 uncigerous thoracic segments	..	..	..	..	..	..	..	<i>Amphicteis</i>
	11 uncigerous thoracic segments	..	..	..	..	..	..	..	<i>Amage</i>
5.	14 uncigerous thoracic segments	..	..	..	..	..	..	..	<i>Parphypania</i>
	13 uncigerous thoracic segments	..	..	..	..	..	..	..	<i>Hypania</i>
	11 uncigerous thoracic segments	..	..	..	..	..	..	..	<i>Grubianella</i>
6.	14 uncigerous thoracic segments	..	..	..	..	..	..	..	7
	13 uncigerous thoracic segments	..	..	..	..	..	..	..	<i>Lysippe</i>
	12 uncigerous thoracic segments	..	..	..	..	..	..	..	8
	11 uncigerous thoracic segments	..	..	..	..	..	..	..	12
7.	Notopodial cirri present	..	..	..	..	..	..	..	<i>Phyllamphicteis</i>
	Notopodial cirri absent	..	..	..	..	..	..	..	<i>Lysippides</i>
8.	Tentacles papillose. Abdominal notopodia seldom present	..	..	..	..	..	..	..	9
	Tentacles smooth and grooved. Abdominal notopodia always present	..	..	..	..	..	..	..	10
9.	No nephridial papilla on the branchial ridge	..	..	..	..	..	..	..	<i>Ampharete</i>
	One nephridial papilla on the branchial ridge	..	..	..	..	..	..	..	<i>Asabellides</i>
10.	No specialized posterior notosetae or elevated notopodia. Over 30 abdominal segments	..	..	..	..	..	..	..	<i>Phyllocomus</i>
	Specialized notosetae present in some elevated posterior notopodia. Less than 20 abdominal segments	..	..	..	..	..	..	..	11
11.	One nephridial papilla on the branchial ridge	..	..	..	..	..	..	..	<i>Sosane</i>
	No nephridial papilla on the branchial ridge	..	..	..	..	..	..	..	<i>Sosanopsis</i>
12.	Tentacles smooth with a longitudinal groove. No nephridial papillae on the branchial ridge	..	..	..	..	..	..	..	<i>Paramage</i>
	Tentacles papillose. 2 nephridial papillae on the branchial ridge	..	..	..	..	..	..	..	<i>Sabellides</i>
13.	14 uncigerous thoracic segments	..	..	..	..	..	..	..	14
	13 uncigerous thoracic segments	..	..	..	..	..	..	..	<i>Microsamytha</i>
	12 uncigerous thoracic segments	..	..	..	..	..	..	..	16
	11 uncigerous thoracic segments	..	..	..	..	..	..	..	<i>Glyphanostomum</i>
	9 uncigerous thoracic segments. Last notopodium elevated and bears modified notosetae	..	..	..	..	..	..	..	<i>Mugga</i>
14.	Glandular ridges on prostomium	..	..	..	..	..	..	..	<i>Samythopsis</i>
	No glandular ridges on prostomium	..	..	..	..	..	..	..	15
15.	Abdominal notopodia present. Tentacles numerous and smooth. Paleae usually absent	..	..	..	..	..	..	..	<i>Samytha</i>
	Abdominal notopodia absent. Tentacles represented by a folded membrane. Paleae usually absent	..	..	..	..	..	..	..	<i>Amythas</i>
	(With paleae, other characters unknown)	..	..	..	..	..	..	..	<i>Aryandes</i>
16.	Tentacles papillose	..	..	..	..	..	..	..	17
	Tentacles smooth	..	..	..	..	..	..	..	18
17.	A dorsal ridge between segments VI and VII. Paleae present on segment III	..	..	..	..	..	..	..	<i>Melinnampharete</i>
	No dorsal ridge. No setae on segment III	..	..	..	..	..	..	..	<i>Neosabellides</i>
18.	Tentacular lobe prolonged	..	..	..	..	..	..	..	<i>Pabits</i>
	No elongate tentacular lobe	..	..	..	..	..	..	..	<i>Samythella</i>



## AMPHICTEIS Grube 1851

Synonyms *Crossostoma* Gosse 1855, *?Rytocephalus* Quatrefages 1865, and *Paramphicteis* Caullery 1944.

Prostomium with a pair of glandular ridges. Buccal tentacles smooth with a groove along one side. Four pairs of gills. Segments III–VI without neurosetae. Segment III often with paleae; segments IV–VI with notopodial capillaries. Fourteen uncigerous thoracic segments. Notopodial cirri present. Thoracic uncini with a single vertical series of teeth. Thirteen to 19 abdominal segments sometimes with rudimentary notopodia as well as uncigerous pinnules.

Type-species *Amphitrite gunneri* Sars 1835.

## AMAGE Malmgren 1866

Prostomium with glandular ridges. Buccal tentacles smooth with a groove along one side. Four pairs of gills. Segments III–VI without neurosetae. Segments IV–VI usually with notopodial capillaries. Eleven uncigerous thoracic segments. Notopodial cirri present. Thoracic uncini with 1 or 2 series of teeth. Eight to 15 abdominal segments usually with rudimentary notopodia as well as uncigerous pinnules.

Type-species *Amage auriculata* Malmgren 1866.

## PARHYPANIA Annenkova 1928

Prostomium with glandular ridges. Buccal tentacles smooth. Four pairs of gills. Segments III–VI without neurosetae. Segment III often with paleae, segments IV–VI usually with notopodial capillaries. Fourteen uncigerous thoracic segments. Notopodial cirri absent. About 16–20 abdominal segments sometimes with rudimentary notopodia as well as uncigerous pinnules.

Type-species: *Amphicteis brevispinus* Grube 1860.

## HYPANIA Ostrooumov 1897

Prostomium with glandular ridges. Buccal tentacles smooth. Four pairs of gills. Segments III–VI without neurosetae. Segment III often with paleae, segment IV may have notosetae, segments V and VI always with notopodial capillaries. Thirteen uncigerous thoracic segments. Notopodial cirri absent. About 15–30 abdominal segments sometimes with rudimentary notopodia as well as uncigerous pinnules.

Type-species: *Amphicteis invalida* Grube 1860.

## GRUBIANELLA McIntosh 1885

Prostomium with glandular ridges. Buccal tentacles smooth. Four pairs of gills. Segments III–VI without neurosetae. Notopodial capillaries present on segments V and VI and sometimes on segment IV. Eleven uncigerous thoracic segments. Thoracic uncini usually with 2 series of teeth. Notopodial cirri doubtful. About 25 abdominal segments; the last few are reported to be swollen in the type but this is probably an abnormality.

Type-species: *Grubianella antarctica* McIntosh 1885.

## LYSIPPIDES Hesse 1917

Synonyms *Amphisamytha* Hesse 1917 and *Hypaniola* Annenkova 1928.

Prostomium without glandular ridges. Buccal tentacles smooth with a groove along one side. Four pairs of gills. Segments III–VI without neurosetae. Notosetae present on segments V and VI and usually III and IV as well. Fourteen uncigerous thoracic segments. Notopodial cirri absent. Thoracic uncini with 1–3 series of teeth. Between 8 and 23 abdominal segments usually with rudimentary notopodia as well as uncigerous pinnules.

Type-species: *Amphicteis fragilis* Wollebaek 1912.

## PHYLLAMPHICTEIS Augener 1918

Synonym *Paiwa* Chamberlin 1919.

Prostomium without glandular ridges. Buccal tentacles smooth. Four pairs of gills. Segments III–VI without neurosetae. Notosetae present on segments V and VI and usually on III and IV as well. Fourteen uncigerous thoracic segments. Notopodial cirri present. Thoracic uncini with 1–3 series of teeth. Between 15 and 20 abdominal segments sometimes with rudimentary notopodia as well as uncigerous pinnules.

Type-species: *Phyllamphicteis collaribranchis* Augener 1918.

## LYSIPPE Malmgren 1866

Synonym *Pterolysippe* Augener 1918.

Prostomium without glandular ridges. Buccal tentacles smooth. Four pairs of gills. Segments III–VI without neurosetae. Small notosetae often present on segments III and IV and notosetae always present on V and VI. Thirteen uncigerous thoracic segments. Thoracic uncini with 2–3 series of teeth. Notopodial cirri absent. About 12–15 abdominal segments sometimes with rudimentary notopodia as well as uncigerous pinnules.

Type-species: *Lysippe labiata* Malmgren 1866.

## AMPHARETE Malmgren 1866

Synonym *Branchiosabella* Claparède 1863.

Prostomium without glandular ridges. Buccal tentacles papillose. Four pairs of gills. No nephridial papilla on the branchial ridge. Segments III–VI without neurosetae. Notosetae of segment III usually enlarged to form paleae; notosetae of segment IV usually absent; notosetae of segments V and VI always present. Twelve uncigerous thoracic segments. Notopodial cirri absent. Thoracic uncini usually with 2 series of teeth. About 12–15 abdominal segments which have uncigerous pinnules but usually lack rudimentary notopodia.

Type-species: *Amphicteis acutifrons* Grube 1860.

## ASABELLIDES Annenkova 1929

Synonym *Pseudosabellides* Berkely and Berkely 1943.

Prostomium without glandular ridges. Buccal tentacles papillose. Four pairs of gills. One nephridial papilla on the branchial ridge between the two groups of gills. Segments III–VI without neurosetae. Notopodial capillaries present on segments V and VI but usually absent from III and IV. Twelve uncigerous thoracic segments. Notopodial cirri absent. Thoracic uncini usually with 2 series of teeth. About 21 abdominal segments which have uncigerous pinnules but lack rudimentary notopodia.

Type-species: *Sabellides sibirica* Wiren 1883.

## PHYLLOCOMUS Grube 1878

Synonym *Schistocomus* Chamberlin 1919.

Prostomium without glandular ridges. Buccal tentacles smooth with a groove along one side. Four pairs of gills. Segments III–VI without neurosetae. Notopodial capillaries present on segments IV, V and VI. Twelve uncigerous thoracic segments. No specialized notosetae. Notopodial cirri present or absent. Thoracic uncini with a single series of teeth. Numerous (over 30) abdominal segments.

Type-species: *Phyllocomus crocea* Grube 1878.

## SOSANE Malmgren 1866

Synonym *Anobothrus* Levinsen 1883.

Prostomium without glandular ridges. Buccal tentacles smooth. Four pairs of gills. One nephridial papilla on the branchial ridge between the two groups of gills. Segments III–VI without neurosetae. Notosetae usually present on all four segments III to VI and often enlarged to form paleae on segment III. Twelve uncigerous thoracic segments with one or more of the posterior notopodia elevated and bearing specialized notosetae. Notopodial cirri absent. Thoracic uncini with 1–2 series of teeth. About 13 abdominal segments usually with rudimentary notopodia as well as uncigerous pinnules.

Type-species: *Sosane sulcata* Malmgren 1866.

## SOSANOPSIS Hessle 1917

Prostomium without glandular ridges. Buccal tentacles smooth. Four pairs of gills. No nephridial papillae on the branchial ridge. Segments III–VI without neurosetae. Segments V and VI with notopodial capillaries and usually segment IV as well. Twelve uncigerous thoracic segments with the last notopodium elevated and bearing specialized notosetae. Notopodial cirri absent. Thoracic uncini with 2–3 series of teeth. About 11 abdominal segments usually with rudimentary notopodia as well as uncigerous pinnules.

Type-species: *Sosanopsis wireni* Hessle 1917.

## PARAMAGE Caullery 1944

Prostomium without glandular ridges. Buccal tentacles smooth. Four pairs of gills. No nephridial papillae on the branchial ridge. Segments III–VI without neurosetae. Segment VI with notopodial capillaries but notosetae often absent from more anterior segments. Eleven uncigerous thoracic segments. No specialized posterior notosetae. Notopodial cirri absent. Thoracic uncini usually with a single series of teeth. About 11 abdominal segments with rudimentary notopodia as well as uncigerous pinnules.

Type-species: *Paramage madurensis* Caullery 1944.

## SABELLIDES Milne-Edwards 1838

Synonyms *Heterobranchus* Wagner 1885 and *Pterampharete* Augener 1918.

Prostomium without glandular ridges. Buccal tentacles papillose. Four pairs of gills. A pair of nephridial papillae on the branchial ridge between the two groups of gills. Segments III–VI without neurosetae. Segments V and VI with notopodial capillaries, segment IV usually fused to segment III and without notosetae, but notosetae often present on segment III. Eleven uncigerous thoracic segments. No specialized posterior notosetae. Notopodial cirri absent. Thoracic uncini with 1 or 2 series of teeth. Between 11 and 18 abdominal segments with uncigerous pinnules but no rudimentary notopodia.

Type-species: ? *Sabella octocirrata* Sars 1835.

## SAMYTHOPSIS McIntosh 1885

Prostomium with glandular ridges. Buccal tentacles smooth. Three pairs of gills. Segments III–VI without neurosetae. Segments IV–VI with notopodial capillaries. Fourteen uncigerous thoracic segments. Notopodial cirri doubtful. About 22 abdominal segments which may have rudimentary notopodia as well as uncigerous pinnules.

Type-species: *Samythopsis grubei* McIntosh 1885.

## SAMYTHA Malmgren 1866

Prostomium without glandular ridges. Buccal tentacles numerous and smooth. Three pairs of gills. Segments III–VI without neurosetae. Segments IV–VI with notopodial capillaries. Fourteen uncigerous thoracic segments. No notopodial cirri. Thoracic uncini with 2–3 series of teeth. About 13 abdominal segments with rudimentary notopodia as well as uncigerous pinnules.

Type-species: *Sabellides sexcirrata* Sars 1856.

## AMYTHAS Benham 1921

Prostomium without glandular ridges. Buccal tentacles replaced by a frilly membrane. Three pairs of gills. Segments III–VI without neurosetae. Segments IV–VI with notopodial capillaries. Fourteen uncigerous thoracic segments. No notopodial cirri. Thoracic uncini with 2 series of teeth. Fourteen or more abdominal segments without rudimentary notopodia above the uncigerous pinnules.

Type-species: *Amythas membranifera* Benham 1921.

## ARYANDES Kinberg 1867

A questionable and incompletely described genus generally similar to *Samytha* but with paleae.

Type-species: *Aryandes gracilis* Kinberg 1867.

## MICROSAMYTHA Augener 1928

Synonym ? *Alkmaria* Horst 1920.

*Note*: Both genera are incompletely described and may belong to the family Terebellidae. More is known of *Microsamytha* and this name is retained *pro tem*.

Prostomium without glandular ridges and 'of the *Ampharete* type'. Buccal tentacles smooth. Three pairs of gills. Segments III–VI without neurosetae. Segments IV, V and VI with notopodial capillaries. Thirteen uncigerous thoracic segments. Between 13 and 19 abdominal segments.

Type-species *Microsamytha rychiana* Augener 1928.

## MELINNAMPHARETE Annenkova 1937

Prostomium without glandular ridges. Buccal tentacles papillose. Three pairs of gills. Segments III–VI without neurosetae. Notosetae usually present on all four segments (III–VI) and often enlarged to form paleae on segment III. A dorsal ridge between segments VI and VII. Twelve uncigerous thoracic segments. No notopodial cirri. ? number of abdominal segments.

Type-species: *Melinnampharete eoa* Annenkova 1937.

*Neosabellides* Hessle 1917

Prostomium without glandular ridges. Buccal tentacles papillose. Three pairs of gills. Segments III–VI without neurosetae. Notosetae present on segments V and VI but usually absent from III and IV. No dorsal ridge between segments VI and VII. Twelve uncigerous thoracic segments. No notopodial cirri. Thoracic uncini usually with 2 series of teeth. About 19 abdominal segments.

Type-species: *Sabellides elongatus* Ehlers 1913.

## PABITS Chamberlin 1919

Prostomium without glandular ridges. Buccal tentacles smooth and borne on a long probosciform organ. Three pairs of gills. Segments III–VI without neurosetae. Notosetae present on segments V and VI and usually on IV as well. Twelve uncigerous thoracic segments. No notopodial cirri. Thoracic uncini with 2 series of teeth. Number of abdominal segments unknown.

Type-species: *Pabits deroderus* Chamberlin 1919.

## SAMYTHELLA Verrill 1873

Synonyms *Eusamytha* McIntosh 1885 and ? *Eclysippe* Eliason 1955.

Prostomium without glandular ridges. Buccal tentacles smooth and borne on an elongate tentacular lobe. Three pairs of gills. Segments III–VI without neurosetae. Notopodial capillaries present on segments IV–VI and sometimes on III as well. Twelve uncigerous thoracic segments. Notopodial cirri may be present on the last few thoracic setigers. Thoracic uncini with 1 or 2 series of teeth. Up to 36 abdominal segments.

Type-species: *Samythella elongata* Verrill 1873.

## GLYPHANOSTOMUM Levinsen 1883

Synonym *Amythasides* Eliason 1955.

Prostomium without glandular ridges. Buccal tentacles smooth (? always). Three pairs of gills. Segments III–VI without neurosetae. Segments IV–VI with notopodial capillaries and segment III sometimes with paleae. Eleven uncigerous thoracic segments. Notopodial cirri absent. Thoracic uncini with 2 or more series of teeth. Twelve to 25 abdominal segments without rudimentary notopodia but with uncigerous pinnules.

Type-species *Samytha pallescens* Theel 1878.

## MUGGA Eliason 1955

Prostomium without glandular ridges. Buccal tentacles smooth. Three pairs of gills. Segments III–VI without neurosetae but all of them may have notosetae. Nine uncigerous thoracic segments. Notopodium of the last thoracic segment dorsally situated and bearing modified notosetae. Thoracic uncini with more than 2 series of teeth. Number of abdominal segments unknown.

Type-species: *Mugga wahrbergi* Eliason 1955.

## AUCHENOPLAX Ehlers 1887

Synonym *Melinnoides* Benham 1921.

Prostomium without glandular ridges. Buccal tentacles smooth with a groove along one side. Two pairs of gills. Segments III–VI without neurosetae. Segments V and VI with notopodial capillaries. Twelve uncigerous thoracic segments and about 12–15 abdominal ones. First row of thoracic uncini on segment VII very long. Thoracic uncini with 1–2 series of teeth. Notopodial cirri absent.

Type-species: *Auchenoplax crinita* Ehlers 1887.

## SUMMARY

The characters of existing genera are discussed and it is shown that confusion has arisen because the anterior segments have been telescoped and there are two different systems of numbering them. It is proposed that the separation of genera be based primarily on the number of gills and the number of uncigerous thoracic segments. The main diagnostic characters of 49 type-species have been tabulated and it is suggested that 16 genera which are mostly monotypic be sunk. Keys and definitions of the remaining 33 genera are provided.

## REFERENCES

- ANNENKOVA, N. 1928. Ueber die pontokaspischen Polychaeten. 2. Die Gattungen *Hypaniola*, *Parhypania*, *Farbicia* und *Manayunkia*. *Annu. Mus. zool. Akad. Leningrad* **30**: 13-20.
- ANNENKOVA, N. 1930. Zur Polychaetenfauna von Franz-Joseph-Land. (*Melinneis* gen. nov. *arctica* sp. n.) *Zool. Anz.* **95**: 269-272.
- ANNENKOVA, N. 1937. [The polychaete fauna of the northern part of the Japan Sea.] *Issled. Mor. USSR* **23**: 139-216. [In Russian.]
- AUGENER, H. 1918. Polychaeta. In Michaelsen, W., ed. *Beiträge zur Kenntnis der Meeresfauna Westafrikas.* **2**: 67-625. Hamburg: Friederichsen.
- AUGENER, H. 1928. Beitrag zur Polychaetenfauna der Ostsee. *Z. Morph. Oekol. Tiere* **11**: 102-104.
- BENHAM, W. B. 1921. Polychaeta. *Sci. Rep. Aust. antarct. Exped.* (c), **6**, 3: 1-128.
- BERKELEY, E. and C. 1943. Biological and oceanographical conditions in Hudson Bay. 11. Polychaeta from Hudson Bay. *J. Fish. Res. Bd. Can.* **6**: 129-132.
- CAULLERY, M. 1944. Polychètes sédentaires de l'expédition du *Siboga*. [II.] *Siboga Exped. mon.* **24** 2bis: 1-204.
- CHAMBERLIN, R. V. 1919. The Annelida Polychaeta. *Mem. Mus. comp. Zool. Harv.* **48**: 1-514.
- DAY, J. H. 1955. The Polychaeta of South Africa. Part 3: Sedentary species from Cape shores and estuaries. *J. Linn. Soc. (Zool.)* **42**: 407-452.
- DAY, J. H. 1961. The Polychaete fauna of South Africa. Part 6: Sedentary species dredged off Cape coasts with a few new records from the shore. *J. Linn. Soc. (Zool.)* **44**: 463-560.
- EHLERS, E. 1887. Report on the annelids of the dredging expedition of the U.S. coast survey steamer *Blake*. *Mem. Mus. comp. Zool. Harv.* **15**: 1-335.
- EHLERS, E. 1913. Die Polychaeten-Sammlungen der deutschen Südpolar-Expedition 1901-1903. *Dtsch. Südpol.-Exped.* **13**: 397-598.
- ELIASON, A. 1955. Neue oder wenig bekannte swedische Ampharetiden (Polychaeta). *Goteborg, VetenskSamh. Handl.* (7) **6B** (16): 1-17.
- FAUVEL, P. 1897. Recherches sur les ampharétiens, annélides polychètes sédentaires. Morphologie, anatomie, histologie, physiologie. *Bull. sci. Fr. Belg.* **30**: 277-488.
- FAUVEL, P. 1927. Polychètes sédentaires. *Faune Fr.* **16**: 1-494.
- FAUVEL, P. 1936. Polychètes. *Result. Voy. Belgica Zool.*: 1-44.
- GOSSE, P. H. 1855. On new and little known marine animals. *Ann. Mag. nat. Hist.* (2) **16**: 31-35.
- GRIMM, O. A. 1877. [The Caspian Sea and its fauna.] In Grimm, O. A., ed. [*Transactions of the Aralo-Caspian expedition.*] **2**: 1-168. S.-Petersburgh. [In Russian.]
- GRUBE, E. 1851. Die Familien der Anneliden. *Arch. Naturgesch.* **16**: 249-364.
- GRUBE, E. 1860. Beschreibung neuer oder wenig bekannter Anneliden. *Arch. Naturgesch.* **26**: 71-118.
- GRUBE, E. 1878. Einige neue Anneliden aus Japan. *Jber. schles-Ges. vaterl. Kult.* **55**: 104-106.
- HESSLE, C. 1917. Zur Kenntnis der terebellomorphen Polychaeten. *Zool. Bidr. Uppsala* **5**: 39-258.
- HORST, R. 1920. Polychaete anneliden uit het Alkmaarder Meer. *Zool. Meded.* **5**: 110-111.
- KINBERG, J. G. H. 1867. *Annulata nova*. *Öfvers. VetenskAkad. Förh., Stockh.* **23**: 337-357.
- LEVINSEN, G. M. 1883. Systematik-geographisk oversigt over de nordiske Annulata, Gephyrea, Chaetognathi og Balanoglossi. *Vidensk. Medd. dansk naturh. Foren Kbh.* **2**: 92-348.
- MCINTOSH, W. C. 1885. Report on the Annelida Polychaeta collected by H.M.S. *Challenger* during the years 1873-76. *Rep. Voy. Challenger 1873-76 (Zool.)* **12**: 1-554.

- MCINTOSH, W. C. 1914. Notes from the Gatty Marine Laboratory, St. Andrews No. 36, 4. On the British Ampharetidae. *Ann. Mag. nat. Hist.* (8) **13**: 77-110.
- MALMGREN, A. J. 1865. Nordiska Hafs-Annulata. *Öfvers. VetenskAkad. Forh. Stockh.* **22**: 355-410.
- MALMGREN, A. J. 1866. *Annulata Polychaeta Spetsbergiae, Groenlandiae, Islandiae et Scandinaviae hactenus cognita*. Helsingforsiae.
- MEYER, E. 1887. Studien über den Körperbau der Anneliden. *Mitt. zool. Sta. Neapel*, **7**: 592-741.
- MILNE-EDWARDS, M. H. 1836-41. Les annélides. In Cuvier, G. *Le regne animal distribué d'après son organisation*. [3rd ed.] **9**. Paris: Masson.
- MÜLLER, Fr. 1858. Einiges über die Anneliden fauna der Insel Santa Catharina an der brasilianischen Küste. *Arch. i Naturgesch.* **24**: 211-220.
- NILSSON, D. 1912. Beiträge zur Kenntnis der Nervensystems der Polychaeten. *Zool. Bidr. Uppsala* **1**: 85-161.
- OSTROMOUMOV, A. 1897. [Hydrobiological researches at the mouths of rivers in southern Russia. Preliminary communication.] *Bull. Acad. Sci. St.-Petersb.* **6**: 343-362. [In Russian.]
- QUATREFAGES, A. de. 1865. *Histoire naturelle des anneles marins et d'eau douce*. **1-2**. Annélides et géphyriens. Paris: Roret.
- SARS, M. 1835. *Beskrivelser og iagttagelser over nogle mærkelige eller nye i havet ved den Bergenske kyst levende dyr af Molypernes, Acalephernes, Radiaternes, Annelidernes og Molluskernes classer*. Bergen.
- SARS, M. 1851. Beretning om en i sommeren 1849 foretagen zoologist reise i Lofoten og Finmarken. *Nyt Mag. Naturv.* **6**: 121-211.
- SARS, M. 1856. *Fauna littoralis Norvegiae* . . . **2**: 1-24. Nye annelider. Bergen.
- THEEL, H. J. 1878. Les annélides polychètes des mers de Nouvell-Zemble. *K. svenska VetenskAkad. Handl.* **16** (3): 3-75.
- USCHAKOV, P. V. 1955. [The polychaete worms of the far eastern seas of the U.S.S.R.] *Tabl. anal. Faune U.R.S.S.* **56**: 1-445. [In Russian.]
- VERRILL, A. E. 1873. Report upon the invertebrate animals of Vineyard Sound and the adjacent waters, with an account of the physical characters of the region. *Rep. U.S. Comm. Fish.* **1**: 295-778.
- WAGNER, N. 1885. Die Wirbellosen des Weissen Meeres. Zoologisch Forschungen an der Küste des Solowetzischen Meerbusens in den Sommermonaten der Jahre 1877, 1879 und 1882. **1**: 1-171. Leipzig.
- WESENBERG-LUND, E. 1949. Polychaetes of the Iranian Gulf. *Dan. sci. Invest. Iran* **4**: 247-400.
- WESENBERG-LUND, E. 1950. The Polychaeta of West Greenland, with special reference to the fauna of Nordre Strømfjord, Kavne- and Bredefjord. *Medd. Grønland* **151** (2): 1-171.
- WIREN, A. 1883. Chaetopødder från Sibiriska Ishafvet och Berings Haf insamlade under Vegaexpeditionen 1878-79. In Nordenskiöld, N. A. E. von. *Vegaexpeditionens vetenskapliga Iakttagelser* . . . **2**: 383-428. Stockholm.
- WIREN, A. 1885. Om zirkulations och digestions-organen hos Annelider of familjerna Ampharetidae, Terebellidae och Amphictenidae. *K. svenska VetenskAkad. Handl.* **21**: 1-58.
- WOLLEBAEK, A. 1912, Nordeuropæiske Annulata Polychaeta. I. Ammocharidae, Amphictenidae, Ampharetidae, Terebellidae og Serpulidae. *Skr. VidenskSelsk., Christ.* **1911** (2): 1-144.